



# RMP

REGIONAL MONITORING  
PROGRAM FOR WATER QUALITY  
IN SAN FRANCISCO BAY

[sfei.org/rmp](http://sfei.org/rmp)

## Science in Support of Managing Water Quality

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# SFEI

# AQUATIC SCIENCE CENTER

SAN FRANCISCO ESTUARY INSTITUTE & THE AQUATIC SCIENCE CENTER  
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# San Francisco Bay



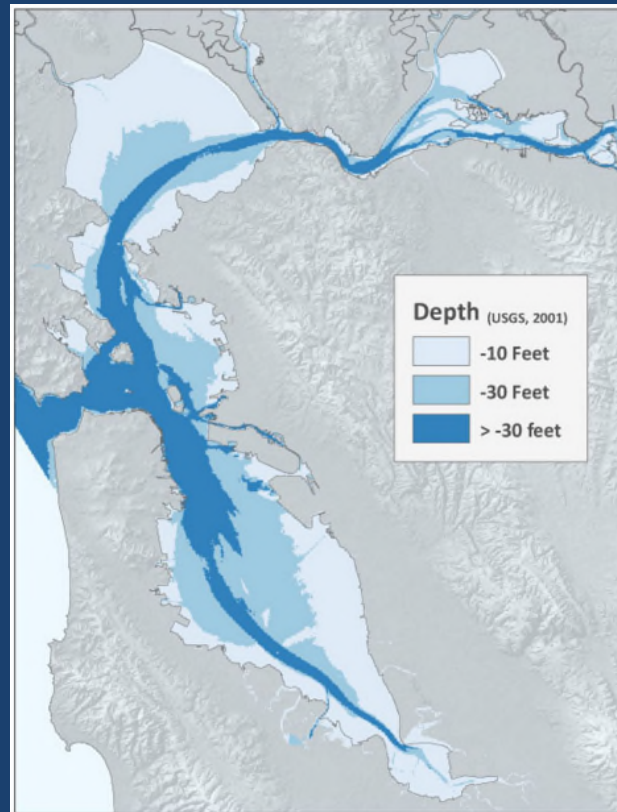
## BIG, URBANIZED

Area = 4,100 km<sup>2</sup>



## SHALLOW, COMPLEX

Median Depth = 4 m



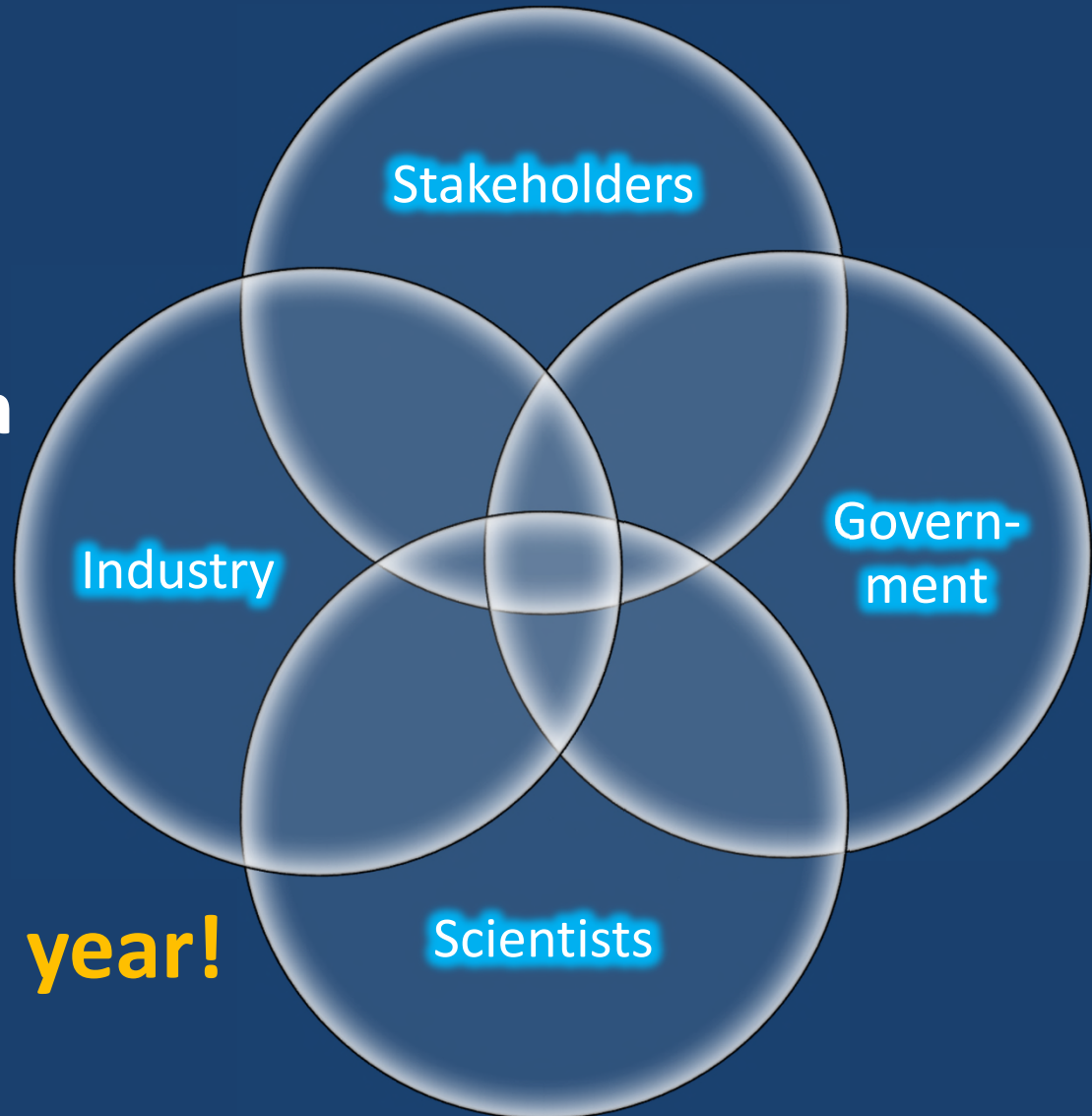
## LARGE WATERSHED

40% of CA



# Regional Monitoring Program for Water Quality in San Francisco Bay

An innovative  
partnership to  
understand the health  
of San Francisco Bay



**Celebrating our 24th year!**





# General Goal of the RMP

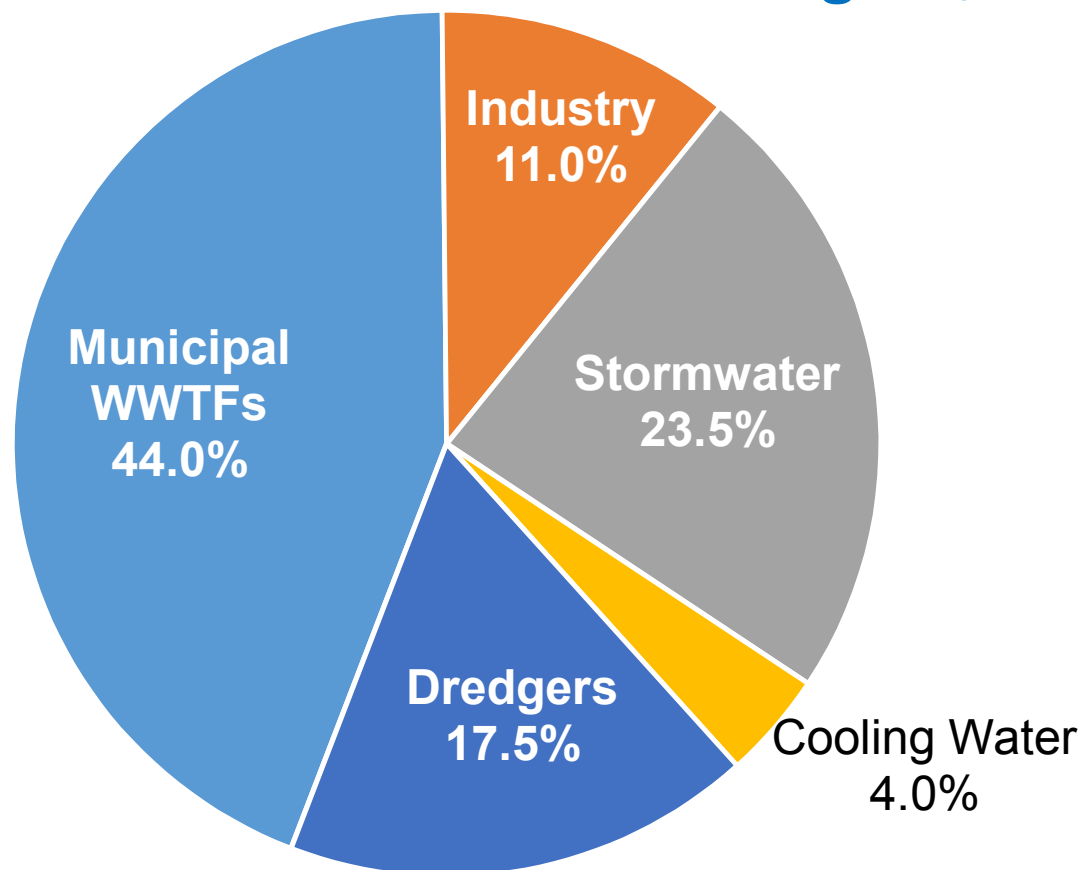
**Collect data and  
communicate information  
about water quality in San Francisco Bay  
in support of management decisions**



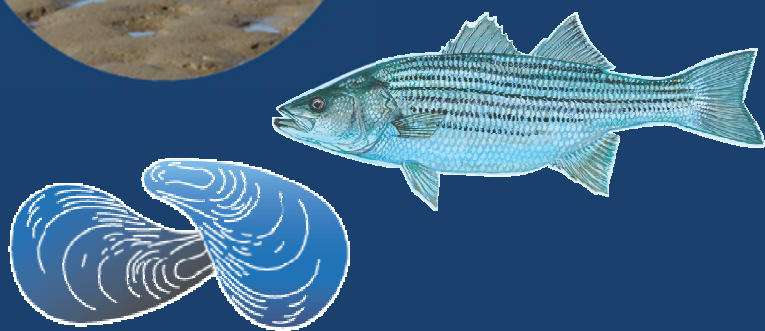
# RMP Participants

## Allocation of RMP Fees by Sector

Budget: \$3.5M



# Status and Trends Monitoring



Mercury  
PCBs / Dioxins

Nutrients

Selenium

Copper

Toxicity

PAHs

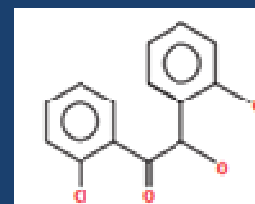
Emerging Contaminants  
(PPCPs, pesticides,  
microplastics, etc.)

# Special Studies

Stormwater:  
Sources, Pathways and Loadings



Nutrients:  
concentrations & effects



Non-targeted  
CECs  
analysis



# Achieving Our Goal

## RMP Impacts on Management Decisions

### **National/State Scale**

Product phase outs  
Identifying high risk CECs

### **Regional Scale**

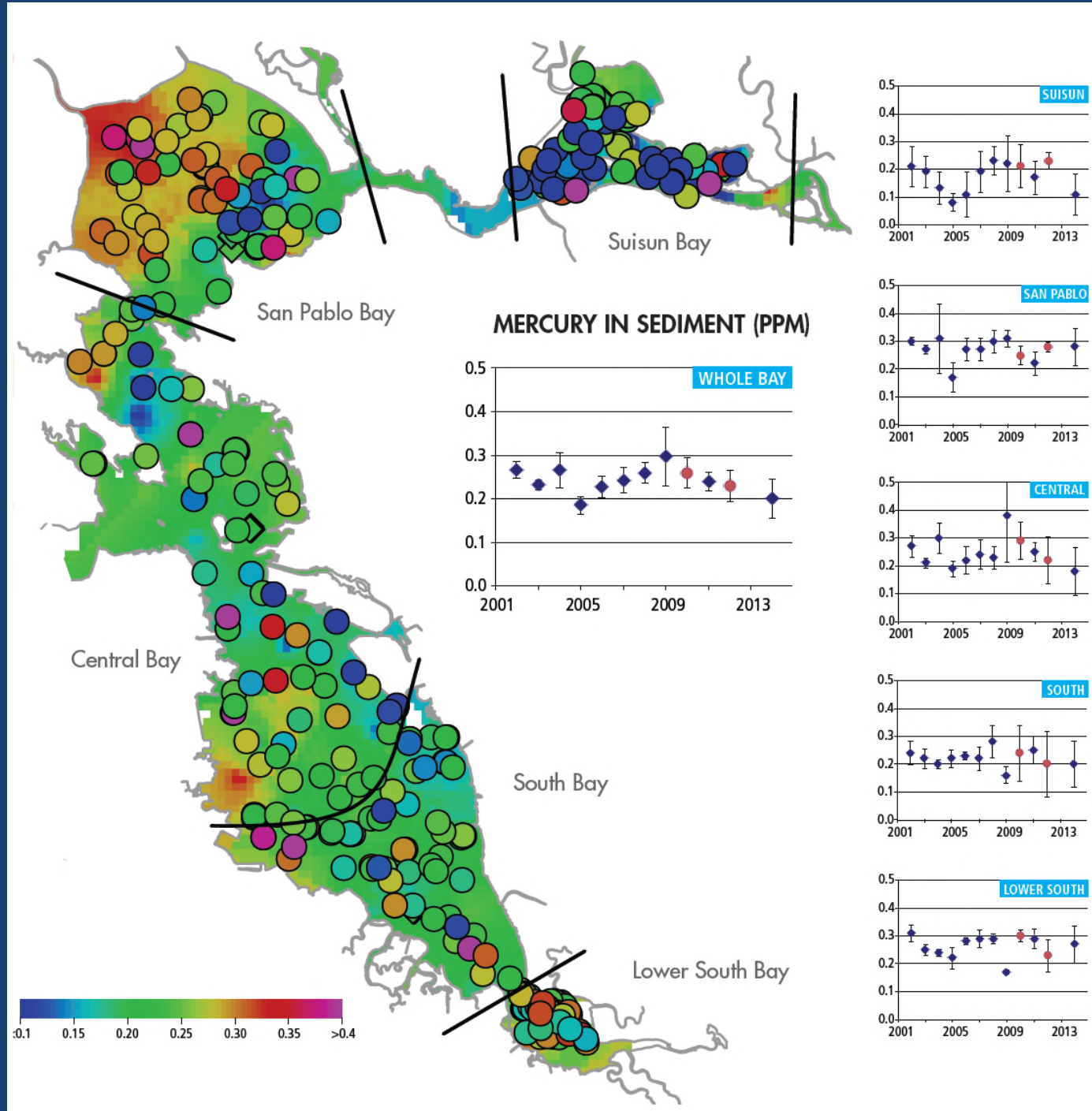
TMDLs for PCBs, Hg, Se  
Fish Consumption Advisories  
Nutrient Management Strategy

### **Local Scale**

Ambient sediment and water  
concentrations for permitting



# RMP Data Establish Background for Local Permits



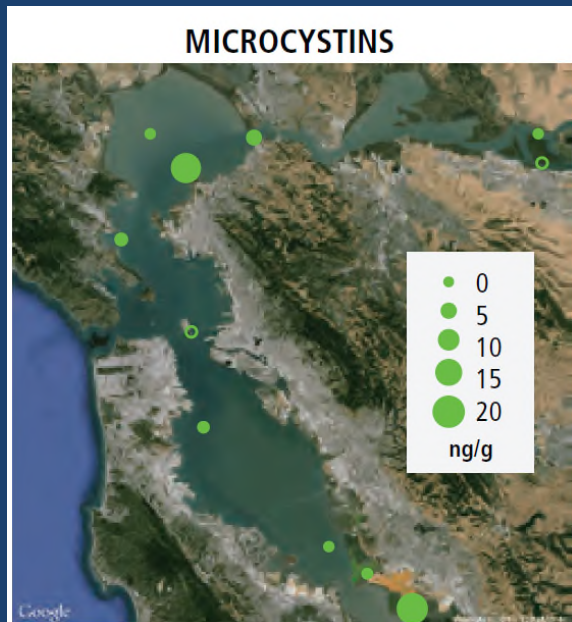


# Nutrient Studies Inform a Multi-Billion Dollar Decision

## Continuous Monitoring with Moored Sensors



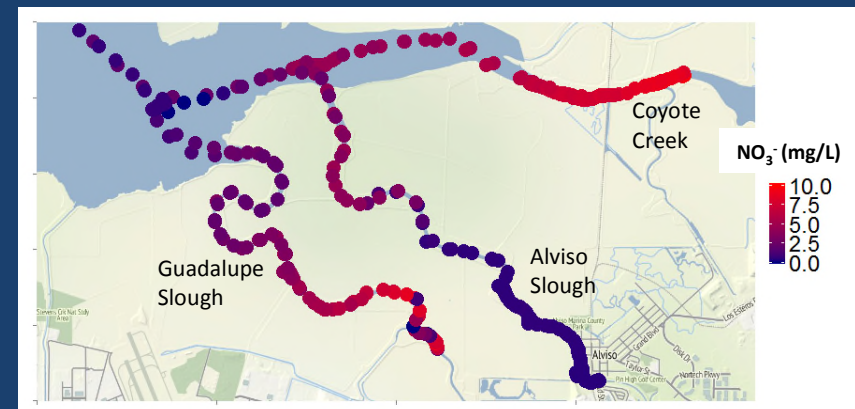
## Algal Toxins



## Water Quality Modeling

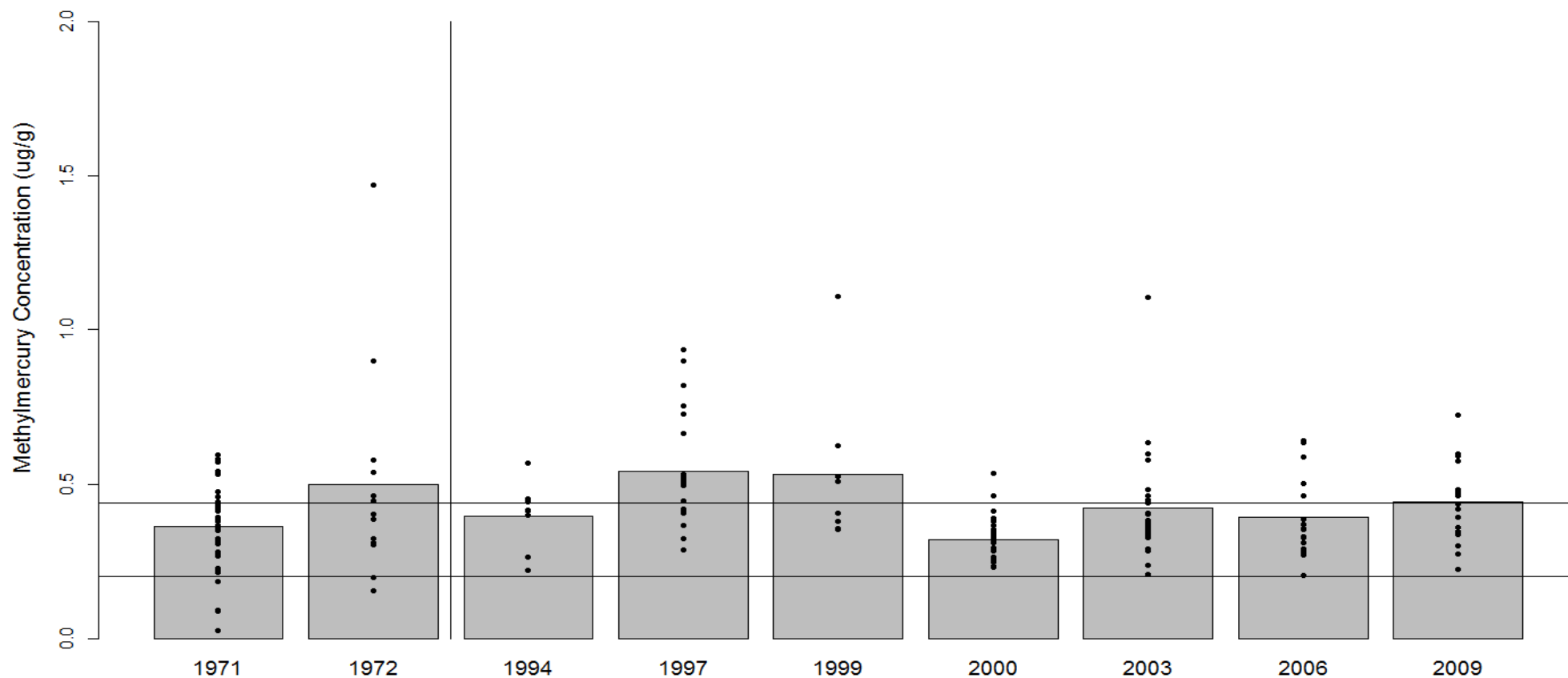


## High-Res Water Quality Mapping



# Fish Tissue Monitoring for TMDLs and Advisories

## Methylmercury in Striped Bass





# Innovative Methods To Monitor Selenium in Fish

## Non-Lethal Sturgeon Muscle Plug Monitoring





# PBDEs: A Bay Area Water Quality Monitoring Success Story

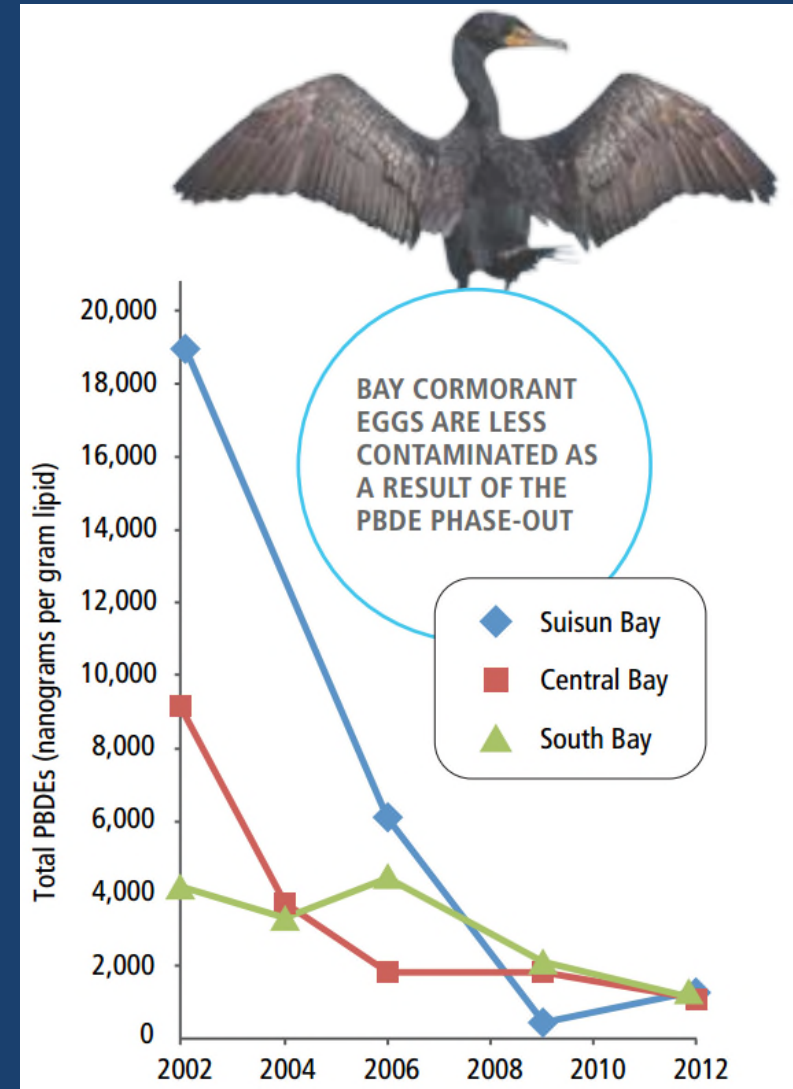
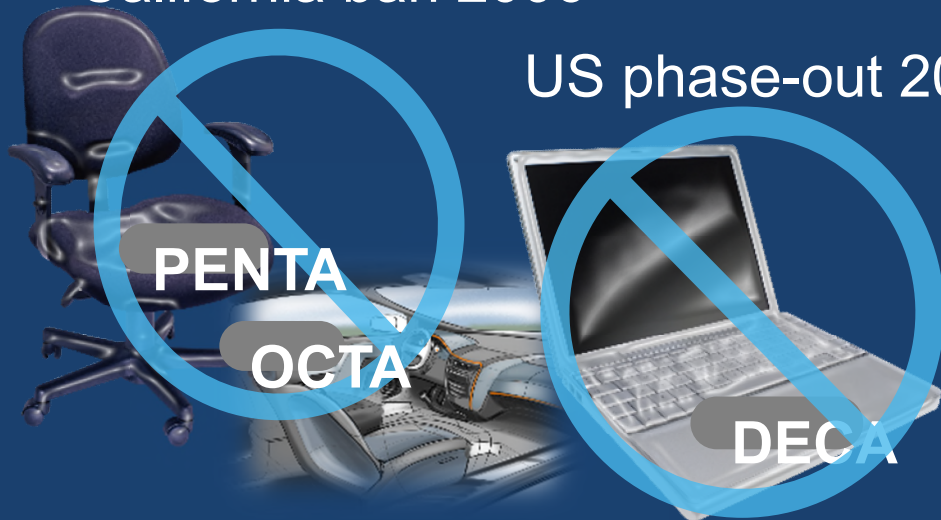
PBDEs added to  
foams, plastics &  
fabrics as a flame  
retardant



SF Bay became a PBDE hot spot

US phase-out 2004,  
California ban 2006

US phase-out 2013



San Francisco Chronicle

SPGATE.COM | Sunday, December 28, 2014 | PRINTED ON RECYCLED PAPER | \$3.00

ENVIRONMENTAL  
Science & Technology

# Developing a Microplastic Strategy For San Francisco Bay:

*Information Needed to Support  
Decision-making*

Bay Monitoring

Connection  
with Marine  
Debris

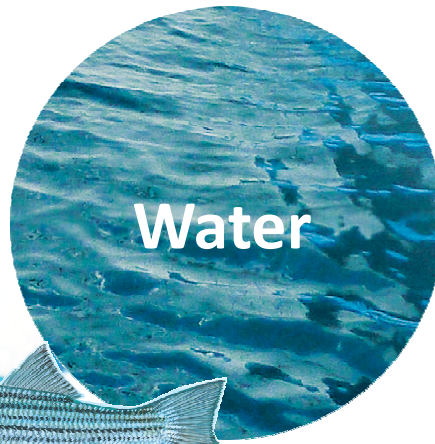
Pollution Pathways



Wastewater



Stormwater



Water

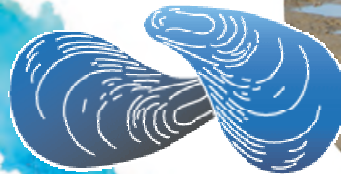


Fish



Sediment

Bottom &  
Shore

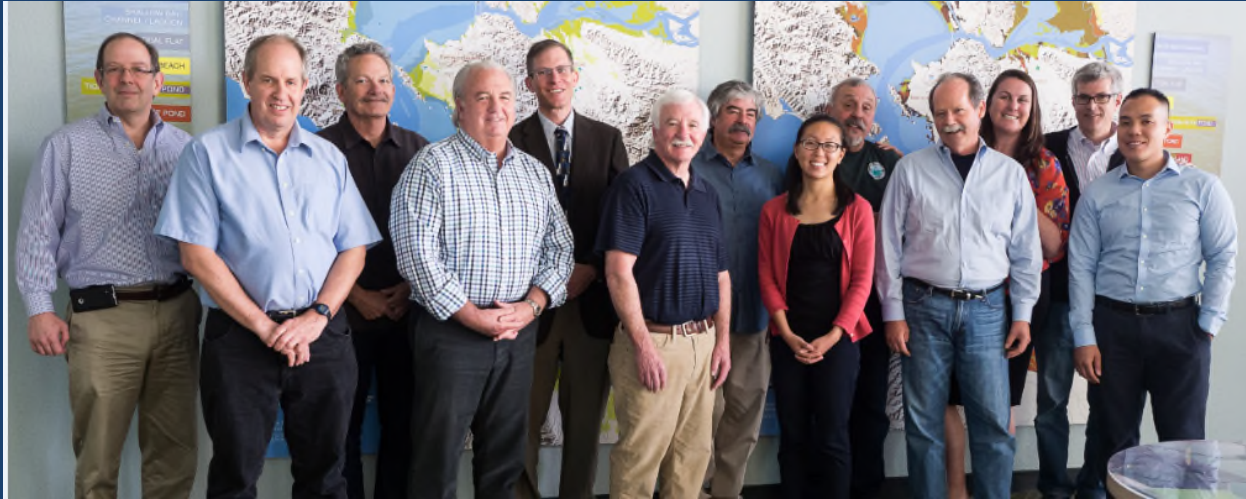


Mussels  
(filter-feeders)



# Keys to the RMP's Success

Forum for Collaboration



Clear Objectives  
Relevant to Decisions

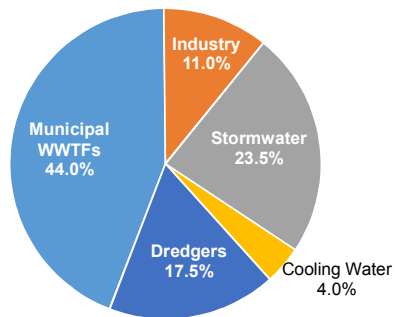


Stable Funding

Long Range Planning

Adaptability

Allocation of RMP Fees by Sector





謝謝

Thank you!



## For More Information

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